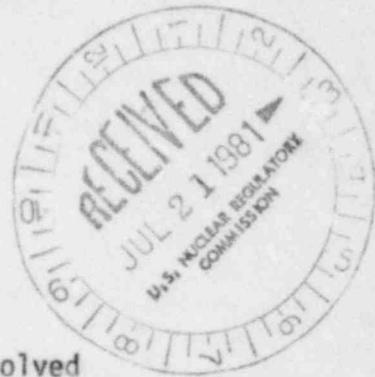


JUL 20 1981

DCS MS-016

Docket No. 50-285

Mr. W. C. Jones, Division Manager
Production Operations
Omaha Public Power District
1623 Harney Street
Omaha, Nebraska 68102



Dear Mr. Jones:

Subject: Information Request Regarding Station Blackout, Unresolved Safety Issue A-44, Fort Calhoun Station Unit No. 1

The NRC staff is currently addressing Unresolved Safety Issue (USI) A-44, Station Blackout. The purpose of this work is to establish the safety significance of an event resulting in a loss of all alternating current power and, if significant, to consider the need for any specific changes. Over the past several years information requests have been forwarded which requested information that is being used in the USI analysis. Your interest and cooperation in the past have been appreciated.

At this time the USI A-44 effort is being directed toward determining the reliability of the onsite standby diesel generators. The enclosed questionnaire has been prepared to provide accurate operating experience to serve as a basis for such a determination. More specifically, its purpose is to obtain more detailed data than were available in previous diesel generator studies such as AEC-GOE-ES-002, NUREG/CR-0660, and NUREG/CR-1362.

The questionnaire (enclosure 1) requests information in tabular form and solicits data for the years 1976 through 1980, inclusive. There are four tables enclosed: (1) Diesel Generator Operations Data, (2) Diesel Generator Scheduled Down Time Record, (3) Diesel Generator Unscheduled Down Time Record, and (4) Onsite Emergency Diesel Generator and Auxiliary Equipment Modification Record. Also enclosed are examples of completed tables as well as a clarification of what should be entered. Please note that, although it may appear that only Licensee Event Report (LER) information is sought, data on all diesel generator malfunctions, independent of whether an LER was prepared, is requested.

Please find enclosed LER documentation (enclosure 2) presently docketed for your facility. You are requested to review these and to indicate if there are other reports which have not been enclosed. Finally, please find enclosed a copy of the appropriate portions of your response (enclosure

8107290253 810720
PDR ADOCK 05000285
F PDR

OFFICE ▶	.....	.....	.....	.....	.....	.....	.....
SURNAME ▶	.....	.....	.....	.....	.....	.....	.....
DATE ▶	.....	.....	.....	.....	.....	.....	.....

Mr. W. C. Jones

- 2 -

3) to our letter of March 6, 1978 which requested related, but different, information. This is being forwarded for your information only and should aid in preparing Tables 1 through 4.

In consideration of the time and effort necessary to obtain this information, the completion of Table 4 should be considered voluntary. However, it should be noted that if operational and hardware modifications are not identified, the positive or negative influence of these features on emergency alternating current power reliability may be lost in the evaluation of the data. The expected effect is that our generic reliability estimates may be lower than that which actually exists.

The above information is requested in accordance with Sections 103.b.(3) and 161.c of the Atomic Energy Act of 1954, as amended. To meet our schedule requirements for the resolution of USI A-44 and to incorporate as much real experience as possible into the reliability model for emergency power systems, it is requested that your response be provided within 120 days of the receipt of this letter. However, if this schedule is inconsistent with priority requirements for other licensing work, please provide us with your proposed date of response within 30 days. We plan to complete our analysis of this data by February 1982. Your data should be provided by that time so that an accurate assessment of onsite alternating current power sources can be made.

Mr. J. Baranowsky has been designated Task Manager for USI A-44. Should you have any questions, please feel free to contact him at (301) 443-5921. Your time and efforts are appreciated.

DISTRIBUTION

Docket File 50-285	J. Roe
NRC & Local PDRs	C. Trammell
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T. Novak	OELD
R. Clark	P. Norian
R. Purple	K. Kniel
D. Eisenhut	F. Schroeder
Enclosures:	T. Murley
As Stated	P. Baranowsky
	J. Butts

Sincerely,

Original signed by
Robert A. Clark

Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing

cc: w/enclosures
See next page

This request for information was approved by the Office of Management and Budget under clearance number 3150-0067 which expires May 31, 1983. Comments on burden and duplication may be directed to the Office of Management and Budget, Washington, D. C. 20503.

OFFICE	DST:GIB	DL:ORB#2	DL:ORB#3	DL:ORB#3		
SURNAME	P. Norian:jb	P. Kniel	C. Trammell	R. A. Clark		
DATE	07/17/81	07/17/81	07/17/81	07/17/81		

Omaha Public Power District

ccc:

Marilyn T. Shaw, Esq.
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1337 New Hampshire Avenue, N.W.
Washington, D. C. 20036

Mr. Emmett Rogert
Chairman, Washington County
Board of Supervisors
Blair, Nebraska 68023

U.S. Environmental Protection Agency
Region VII
ATTN: EIS COORDINATOR
324 East 11th Street
Kansas City, Missouri 64106

Mr. Frank Gibson
W. Dale Clark Library
215 South 15th Street
Omaha, Nebraska 68102

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Mr. Charles B. Brinkman
Manager - Washington Nuclear
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Combustion Engineering, Inc.
4853 Cordell Avenue, Suite A-1
Bethesda, Maryland 20014

Director, Nebraska Department of
Environmental Control
P. O. Box 94877, State House Station
Lincoln, Nebraska 68509

Plant Name _____

Unit No. _____

Onsite Emergency Diesel Generator and
Auxiliary Equipment Modification Record

TABLE 4

Equipment or procedure modified	Date of Mod.	Reason for Modification and Desired Improvement	Description of Modification

TABLE ENTRIES
EXPLANATION/CLARIFICATION

Table 1

Reason for DG Operation and Scheduled Duration of Run: This column contains the different categories of diesel generator operation. The categories are structured such that the start and run conditions are similar for all of the tests in a category. In this column, enter the scheduled run duration for each of the test categories. Also enter the number of diesel generator starts that are done for each type of test. For example, if on the monthly test there is one start from the local controls and one start from the remote controls, the number of starts per test is two. If two or more diesels are started simultaneously for any reason, please record it as a multiple start.

DG No.: Enter each diesel generator's identification number in this column as shown in the example.

Number of Starts: Enter the sum of the successful and unsuccessful start attempts for each category. If there are several starts for each test, include all of them, but be certain to record the number of starts per test in column one.

Number of Failures: Enter the sum of the failures for each category. A failure is counted if the objectives of the test are not achieved. A subsystem failure that does not cause failure of the diesel generator system is not counted as a failure. If the diesel generator did not start, run, and load as required by the test, a failure should be recorded. However, if the diesel generator would have supplied power in some capacity for an emergency, please explain in Table 3. For example, if the diesel started on the second attempt or the diesel was tripped to repair a minor oil leak that would not have been a problem in an emergency, this should be noted in Table 3.

Percent Loading of DG (KW): Enter the percentage that the diesel is loaded for each category. The continuous kilowatt rating is considered to be 100%.

Duration of Run Before Stop for each DG Failure: Record the run-time for each failure. If the diesel failed to start, the run-time would be 0 min.

Identification of Failures: Attached to this questionnaire are abstracts of the LERs related to the diesel generators. The abstracts are numbered starting with one. Refer to this number to identify the failures, but if there was a failure for which there is no abstract, assign the failure a number and include it in Table 3.

Table 2

Reason for Downtime: Enter in this column the categories of schedule maintenance that make the diesel generator unavailable for emergency service. If the diesel generator is unavailable for emergency service during surveillance testing, report that also.

Table 2 (cont'd)

Hours of Downtime: Enter the number of hours that the diesel generator is unavailable for emergency service. Report the hours under the column reactor shutdown or reactor not shutdown as appropriate.

Comments: Comment on time to return to service after maintenance has begun, or other pertinent information.

Table 3

LER Abstract No. (Refer to attached LER Abstracts): The attached LERs are numbered starting from one. Refer to this LER number in column one. Each LER abstract should have an entry in this table. If there was a failure not included in the attached abstracts, please assign it a number and enter it in this table.

Downtime Hours: Enter the number of hours that the diesel generator is unavailable for emergency service. Subdivide these total hours into troubleshooting, parts delivery, and repair or replacement.

Comments: Use this column to comment on the downtime and the failure. If the reported failure was only a technical specification violation, but would not be a complete failure of the diesel generator to supply power or would only be a delay, please elaborate in this column.

Table 4

Equipment or procedure modified: List in this column the equipment or procedures related to the emergency onsite power system that have been modified since the reactor became critical.

Date of Mod.: Enter the date that the modification was completed.

Reason for Modification and Desired Improvement: Report the reason for the modification and the desired or observed improvement in the system.

Description of Modification: Briefly describe what modification was made.

Diesel Generator Operations Data
 Calendar Year 1976

Reason for DG Operation, & Scheduled Duration of Run	DG No.	Number of Starts	Number of Failures	Percent Loading of DG (KW)	Duration of Run Before Stop For Each DG Failure	Identification of Failures (Refer to attached IERs or Table 3)
Tech. Spec Req'd Test Monthly Surveillance (1 hour) (1 start/test)	1	12	2	100	30 min; 0 min	IER # 1 & 4
	2	12	0	100	---	
	3	12	1	100	0 min	IER # 2
Refueling Outage (12 hours) (1 start/test)	1	1	0	100	---	
	2	1	0	100	---	
	3	1	1	100	1 hour	IER # 3
Misc. Tech Spec Req'd Tests (Start Only) (1 start/test)	1	2	0	100	---	Table 3 No. 9
	2	4	0	100	---	
	3	2	0	100	---	
DG Actual Demand Starts not for Testing SIAS Signal (1 hour)	1	1	0	0	---	IER # 8 Multiple start of 3 DGs
	2	1	0	0	---	"
	3	1	0	0	---	"
Miscellaneous Tests (Specify Type) Verify Repairs (not full test) (Start Only)	1	6	0	100	0 min	Table 3 # 10
	2	4	0	0		
	3	4	0	0		

TABLE 2
(Sample)

Diesel Generator Scheduled Downtime Record
Calendar Year 19__

Enclosure 1 - Page 8
Plant Name _____
Unit No. _____

Reason for Downtime	Hours of Downtime										Comments	
	Reactor shutdown					Reactor not shutdown						
	DC# 1	DC# 2	DC# 3	DC#	DC#	DC# 1	DC# 2	DC# 3	DC#	DC#		
Scheduled Maintenance												
Preventive Maintenance Semi-annual & Annual	24	16	--					16				
Equipment Modification						8	8	8				Modified lube oil on each diesel. Diesels down at different times.
Time DG is unavailable for emergency service because of required tests Down 4 hrs per test		8				48	40	48				Diesel cannot be automatically started during test or for three hours afterwards

TABLE 3
(Sample)

Diesel Generator Unscheduled Downtime Record
Calendar Year 19__

Enclosure 1 - Page 9
Plant Name XXX
Unit No. 1&2

LER Abstract No. (Refer to attached LER Abstract)	Downtime Hours				Comments - If any of the reported failures would not have been a failure under emergency conditions, please explain here. Refer to attached LERs or the failures listed in Table 1.
	Total Hours	Trouble-shooting	Parts, Delivery, etc	Repair/replace	
1	4	1	1	2	
2	3	0.5	1	1.5	
3	12	1	10	1	
4	0	0	0	0	Diesel started in 15 sec instead of required 10 sec
5	0	0	0	0	Secondary air pressure low. Primary air satisfactory.
6	0	0	0	0	Secondary air pressure low. Primary air satisfactory.
7	0	0	0	0	Diesel started in 20 sec instead of required 10 sec.
8	0	0	0	0	False DG start signal. DG satisfactory
No LER					
9	0	0	0	0	Required DG starts after the failure of one diesel.
10	0	0	0	0	Starts to verify repairs.

Onsite Emergency Diesel Generator and
Auxiliary Equipment Modification RecordTABLE 4
(Sample)

Equipment or procedure modified	Date of Mod.	Reason for Modification and Desired Improvement	Description of Modification
Lube oil system	2/76	Improve turbo charger lubrication for emergency starts.	Soak-back pump was removed and replaced with a continuous lube oil pump. New pumps also continuously lubricates the crankshaft.
Relay cabinets	1/78	Prevent dirt from fouling relay contacts.	Cabinet doors with gaskets were installed.
Instrument Relocation	6/79	Eliminate vibration damage to instruments	Control and monitoring instrument panel was relocated from the engine skids to a free standing panel mounted on the engine room floor.

89/5/0000001-00000177/

1

PAGE 26

ACCESSION NO. 0020162450
 TITLE DIESEL GENERATOR SECONDARY AIR START SYSTEM FAILS AT FORT CALHOUN 1
 CORPAUTH OMAHA PUBLIC POWER DISTRICT
 DATE 1980
 TYPE Q
 MEMO LTR W/LEF 80-030 TO U.S. NRC, REGION 4, DEC 22, 1980, DOCKET 50-287, TYPE--PWR, MFG--COMB, AE--G&H, UCS NO.--5101130358
 AVAIL AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET, WASHINGTON, D. C. 20555 (65 CENTS/PAGE -- MINIMUM CHARGE \$2.00)
 ABSTRACT DATE OF EVENT - 121180. POWER LEVEL - 075%. CAUSE - STUCK AIR MOTOR VANES. DIESEL GENERATOR #1 (DG-1) FAILED TO START ON ITS SECONDARY AIR SYSTEM. DG-1 WAS REMOVED FROM SERVICE. THE VANES OF THE AIR MOTORS WERE STUCK WHICH PREVENTED THE MOTORS FROM TURNING. THE VANES WERE CLEANED. THE MOTORS WERE INSTALLED AND DG-1 WAS SUCCESSFULLY STARTED ON ITS SECONDARY AIR START SYSTEM. TO PREVENT FUTURE SIMILAR EVENTS, THE AIR START MOTORS AND THE AIR LINE STRAINERS WILL BE INSPECTED AND CLEANED ANNUALLY.
 COMPONENT CODE ENGINE-ENGINES,INTERNAL COMBUSTION
 SYSTEM CODE EE-EMERG GENERATOR SYS & CONTROLS

89/5/0000001-00000177/ 2
 ACCESSION NO. 0020161607
 TITLE DIESEL GENERATOR FAILS TO START AT FT. CALHOUN 1
 CORPAUTH OMAHA PUBLIC POWER DISTRICT
 DATE 1980
 TYPE Q
 MEMO LTR W/LEF 80-028 TO U.S. NRC, REGION 4, NOV 19, 1980, DOCKET 50-288, TYPE--PWR, MFG--COMB, AE--G&H, UCS NO.--5012020020
 AVAIL AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET, WASHINGTON, D. C. 20555 (65 CENTS/PAGE -- MINIMUM CHARGE \$2.00)
 ABSTRACT DATE OF EVENT - 110980. POWER LEVEL - 090%. CAUSE - UNKNOWN. DURING TESTING, DIESEL GENERATOR DG-1 WAS STARTED AND RUN TO OPERATING SPEED. THE BUZZER WHICH TESTS FOR DG-1 READY-TO-LOAD WITHIN 10 SECONDS FAILED TO SOUND WITHIN THE TIME LIMIT. UPON RETESTING, DG-1 FAILED TO START UPON ACTUATION OF CHANNEL A FULL SPEED TEST SWITCH. THE CAUSE OF DG-1 FAILURE TO START PER THE CHANNEL A FULL SPEED TEST SWITCH IS UNKNOWN. IT WAS POSTULATED THAT CERTAIN RELAY CONTACTS, SWITCH CONTACTS, ETC. MAY HAVE OPERATED IMPROPERLY (STUCK). WHEN INVESTIGATED, ALL CIRCUITRY OPERATED PROPERLY. IN ADDITION, AN AIR COMPRESSOR WAS FOUND TO BE OPERATING IMPROPERLY. THE DIESEL WAS RETESTED AND STARTED AND WAS READY-TO-LOAD WITHIN THE TIME LIMIT.
 COMPONENT CODE ENGINE-ENGINES,INTERNAL COMBUSTION
 SYSTEM CODE EE-EMERG GENERATOR SYS & CONTROLS

89/5/0000001-00000177/ 3
 ACCESSION NO. 0020160371
 TITLE DIESEL GENERATOR TRANSFORMER FAILS AT FT. CALHOUN 1
 CORPAUTH OMAHA PUBLIC POWER DISTRICT
 DATE 1980
 TYPE Q
 MEMO LTR W/LEF 80-014 TO U.S. NRC, REGION 4, AUG 31, 1980, DOCKET 50-285, TYPE--PWR, MFG--COMB, AE--G&H
 AVAIL AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET, WASHINGTON, D. C. 20555 (65 CENTS/PAGE -- MINIMUM CHARGE \$2.00)
 ABSTRACT DATE OF EVENT - 070980. POWER LEVEL - 090%. CAUSE - SHORTED COIL. TRANSFORMER (14) OF DG-1 FAILED. THIS TRANSFORMER FEEDS POWER TO THE DIESEL'S OIL IMMERSION HEATER AS WELL AS ALARM CIRCUITRY CORRESPONDING TO THE FOLLOWING ITEMS: LOW LUBE OIL PRESSURE, LOW LUBE OIL LEVEL, AND HIGH OR LOW LUBE OIL TEMPERATURE. THE TRANSFORMER FAILURE WAS CAUSED BY A SHORTED COIL. THE REPLACEMENT TRANSFORMER ALTHOUGH ELECTRICALLY EQUIVALENT WAS OF A DIFFERENT MANUFACTURER. THUS AN EXACT REPLACEMENT TRANSFORMER OR THE TRANSFORMER WHICH HAD SUPERCEDED IT WILL BE PROCURED AND INSTALLED AS SOON AS TIME PERMITS.
 COMPONENT CODE TRANSF-TRANSFORMERS
 SYSTEM CODE EE-EMERG GENERATOR SYS & CONTROLS

ACCESSION NO. 0020160249
 TITLE DIESEL GENERATOR CONTROL CIRCUIT TRANSFORMER FAILS AT FORT CALHOUN I
 CORPAUTH OMAHA PUBLIC POWER DISTRICT
 DATE 1980
 TYPE Q
 MEMO LTR W/LEK 80-021 TO U.S. NRC, REGION 4, SEP 17, 1980, DOCKET 50-235, TYPE--PWR, MFG--COMB, AC--GEN
 AVAIL AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET, WASHINGTON, D. C. 20555 (66 CENTS/PAGE -- MINIMUM CHARGE \$2.00)
 ABSTRACT DATE OF EVENT - 091020. POWER LEVEL - 100%. CAUSE - BINDING CONTACTOR. TRANSFORMER (T4) OF DG-1 FAILED. THIS TRANSFORMER FEEDS THE CONTROL CIRCUITRY FOR THE 15 KW DIESEL OIL IMMERSION HEATER AS WELL AS SUPPLYING POWER TO ALARM RELAYS FOR THE FOLLOWING ITEMS: LOW LUBE OIL PRESSURE, LOW COPE OIL LEVEL, HIGH AND/OR LOW LUBE OIL TEMPERATURE, WATER TEMPERATURE, WATER LEVEL AND WATER PRESSURE. DG-1 WAS CONSIDERED INOPERABLE ONLY DURING THE TIME THAT THE TRANSFORMER ASSOCIATED EQUIPMENT WERE BEING CHANGED OUT, I.E. ONLY WHILE DG-1 WAS IN "LOCAL MAINTENANCE". A MOVEABLE ARMATURE LOCATED ON THE IMMERSION HEATER CONTACTOR WAS LOOSE ON THE PLUNGER SHAFT & THEREFORE, CAUSING A SLIGHT BINDING PROBLEM ON THE CONTACTOR. IT IS POSTULATED THAT THIS BINDING OF THE CONTACTOR CAUSED THE CONTACTOR CONTROL TRANSFORMER TO DRAW EXCESSIVE CURRENT AND EVENTUALLY FAIL. THE MOVEABLE ARMATURE WAS REPAIRED AND THE DIESEL SATISFACTORILY TESTED AND RETURNED TO SERVICE.
 COMPONENT CODE TRANS-TRANSFORMERS
 SYSTEM CODE EE-EMERG GENERATOR SYS & CONTROLS

89/5/0000001-000001777 5
 ACCESSION NO. 0020154900
 TITLE DIESEL GENERATOR FAILS DURING LOAD TESTING AT FT. CALHOUN I
 CORPAUTH OMAHA PUBLIC POWER DISTRICT
 DATE 1980
 TYPE Q
 MEMO LTR W/LEK 80-003 TO U.S. NRC, REGION 4, FEB 20, 1980, DOCKET 50-235, TYPE--PWR, MFG--COMB, AC--GEN
 AVAIL AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET, WASHINGTON, D. C. 20555 (66 CENTS/PAGE -- MINIMUM CHARGE \$2.00)
 ABSTRACT DATE OF EVENT - 012260. POWER LEVEL - 000%. CAUSE - DEFECTIVE DIODE AND RADIATOR TUBE LEAK. WHILE ATTEMPTING TO LOAD DIESEL GENERATOR DG-2 DURING A SPECIAL 24-HOUR DIESEL GENERATOR TEST REQUIRED IN RESPONSE TO BULLETIN 79-23, THE GENERATOR FIELD WENT TO MAXIMUM EXCITATION; THEREFORE, THE DIESEL WAS SHUTDOWN TO PREVENT GENERATOR DAMAGE. THE FAILURE WAS A RESULT OF A REFERENCE ZENER DIODE DRIFT IN THE A-C REGULATOR PANEL. THE DIODE WAS REPLACED AND THE DIESEL GENERATOR TESTING WAS RESUMED. SUBSEQUENTLY, 10 HOURS INTO THE "RESUMED" TEST, A RADIATOR TUBE LEAK WAS DISCOVERED. THIS LEAK WAS REPAIRED AND THE 24-HR. DIESEL TEST WAS RESTARTED AND SATISFACTORILY COMPLETED WITHOUT FURTHER INCIDENT. THE DRIFT OF THE REFERENCE ZENER DIODE AND CORRESPONDINGLY THE GENERATOR OUTPUT CHARACTERISTICS WAS BELIEVED TO HAVE BEEN CAUSED BY A FAULTY ZENER DIODE.
 COMPONENT CODE ENGINE-ENGINES, INTERNAL COMBUSTION
 SYSTEM CODE EE-EMERG GENERATOR SYS & CONTROLS

89/5/0000001-000001777 6
 ACCESSION NO. 0020146561
 TITLE WATER FOUND IN DIESEL OIL STORAGE TANK AT FT. CALHOUN I
 CORPAUTH OMAHA PUBLIC POWER DISTRICT
 DATE 1979
 TYPE Q
 MEMO LTR W/LEK 79-006 TO U.S. NRC, REGION 4, MAR 26, 1979, DOCKET 50-235, TYPE--PWR, MFG--COMB, AC--GEN CONTROL--025472
 AVAIL AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET, WASHINGTON D.C. 20555, (66 P/PAGE -- MINIMUM CHARGE \$2.00)
 ABSTRACT DATE OF EVENT - 031279. POWER LEVEL - 099%. CAUSE - CRACKED PIPE. DURING NORMAL OPERATION THE SHIFT SUPERVISOR NOTED THAT THE DIESEL GENERATOR FUEL OIL STORAGE TANK APPEARED TO BE INCREASING IN LEVEL. AT APPROXIMATELY 0200 A SAMPLE WAS OBTAINED FROM THE DIESEL OIL STORAGE TANK BY USING THE NORMAL

TRANSFER PUMPS. THIS SAMPLE INDICATED THE PRESENCE OF WATER IN THE STORAGE TANK. THE OPERATIONS SUPERVISOR WAS CONTACTED AND A PUMP DOWN OF THE TANK INITIATED UNTIL A CONSISTENT SUPPLY OF FUEL OIL WAS OBSERVED AT THE DISCHARGE OF THE TRANSFER PUMPS. SOURCE OF WATER INLEAKAGE IDENTIFIED TO BE CRACKED FITTING OF SUCTION LINE PENETRATION ON TOP OF TANK. FITTING REPLACED.

COMPONENT CODE
SYSTEM CODE

PIPEXX-PIPES, FITTINGS
EE-EMERG GENERATOR SYS & CONTROLS

89/5/0000001-000001777

7

ACCESSION NO.

0020145286

TITLE

DIESEL GENERATOR BREAKER FAILS TO CLOSE AT FT. CALHOUN 1

CORPAUTH

OMAHA PUBLIC POWER DISTRICT, OMAHA, NE

DATE

1978

TYPE

G

MEMO

4 PGS. LTR W/CLR 78-006 TO NRC OFFICE OF I & E, REGION IV, DEC.

5, 1978, DOCKET 50-285, TYPE--WRK, RFG--COMB., ATT--GIBBS & HILL

AVAIL

AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET,
WASHINGTON, D. C. 20555 (60 CENTS/PAGE -- MINIMUM CHARGE
\$2.00)

ABSTRACT

DATE OF EVENT - 112778. POWER LEVEL - 0%. CAUSE - SWITCH
CONTACTS FAIL TO MAKE CONTACT. DURING PREOPERATIONAL TESTING
OF THE NEW OFFSITE POWER LOWER SYSTEM DIESEL GENERATOR NO. 2
FAILED TO AUTO CLOSE ONTO THE BUS. CONTACTS 27-27C ON THE
GENERAL ELECTRIC MODEL SWITCH WERE NOT MAKING CONTACT. THE
WIRES WERE MOVED TO SPARE CONTACTS 25-25C. THE GENERATOR WAS
SUCCESSFULLY RETESTED.

COMPONENT CODE
SYSTEM CODE

CATBRK-CIRCUIT CLOSERS/INTERRUPTERS
EE-EMERG GENERATOR SYS & CONTROLS

89/5/0000001-000001777

8

ACCESSION NO.

0020142505

TITLE

DIESEL GENERATOR FAILS TO CLOSE ONTO THE BUS AT FT. CALHOUN 1

CORPAUTH

OMAHA PUBLIC POWER DISTRICT, OMAHA, NE

DATE

1978

TYPE

G

MEMO

4 PGS. LTR W/CLR 78-006 TO NRC OFFICE OF I & E, REGION IV, DEC.

5, 1978, DOCKET 50-285, TYPE--WRK, RFG--COMB., ATT--GIBBS & HILL

AVAIL

AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET,
WASHINGTON, D. C. 20555 (60 CENTS/PAGE -- MINIMUM CHARGE
\$2.00)

ABSTRACT

DATE OF EVENT - 112778. POWER LEVEL - 0%. CAUSE - BREAKER
CONTACTS NOT MAKING CONTACT. DURING PREOPERATIONAL TESTING OF
THE NEW OFFSITE POWER LOWER SYSTEM, DIESEL GENERATOR NO. 2
FAILED TO AUTO CLOSE ONTO THE BUS. BREAKER MODEL SWITCH
CONTACTS 27-27C FAILED TO MAKE CONTACT. CONTACTS 27-27C ON
GENERAL ELECTRIC SWITCH MODEL WERE NOT MAKING CONTACT. THE
WIRES WERE MOVED TO SPARE CONTACTS 25-25C. THE GENERATOR WAS
SUCCESSFULLY RETESTED.

COMPONENT CODE
SYSTEM CODE

CATBRK-CIRCUIT CLOSERS/INTERRUPTERS
EE-EMERG GENERATOR SYS & CONTROLS

89/5/0000001-000001777

9

ACCESSION NO.

0020140167

TITLE

DIESEL GENERATOR FIELD GOES TO MAXIMUM EXCITATION AT FT.

CORPAUTH

OMAHA PUBLIC POWER DISTRICT, OMAHA, NE

DATE

1978

TYPE

G

MEMO

5 PGS. LTR W/CLR 78-024 TO J.S. NRC, REGION IV, SEPT. 7, 1978.

DOCKET 50-285, TYPE--WRK, RFG--COMB., ATT--GIBBS & HILL

AVAIL

AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET,
WASHINGTON, D. C. 20555 (60 CENTS/PAGE -- MINIMUM CHARGE
\$2.00)

ABSTRACT

DATE OF EVENT - 080978. POWER LEVEL - 90%. CAUSE - REFERENCE
ZENER DIODE DRIFT. DURING THE MONTHLY LOAD TEST OF DIESEL
GENERATOR NO. 1, THE FIELD WENT TO MAXIMUM EXCITATION AND WAS
SHUTDOWN TO PREVENT GENERATOR DAMAGE. THE FAILURE WAS A RESULT
OF REFERENCE ZENER DIODE DRIFT AND PROBABLE BUS CONDITIONS
COUPLED WITH A POSITIVE FEEDBACK GROUP COMPENSATION. THE DIODE
WAS REPLACED AND THE GENERATOR CURRENT RESTRICTED FOR LOAD
TESTS WHEN PARALLELED TO THE BUS. THE GENERATOR WAS RETESTED
SUCCESSFULLY.

COMPONENT CODE

GENERA-GENERATORS

SYSTEM CODE EE-EMERG GENERATOR SYS & CONTROLS

89/5/0000001-00000177 10

ACCESSION NO. 0020139452
TITLE DIESEL GENERATOR FIELD GOES TO MAXIMUM EXCITATION AT FT. CALHOUN 1

CORPAUTH OMAHA PUBLIC POWER DISTRICT, OMAHA, NE

DATE 1978

TYPE U

MEMO 4 PGS, LTR W/LETR 78-022 TO U.S. NRC, REGION IV, JULY 19, 1978.

AVAIL DCKET 50-285, TYPE--PWR, MFG--COMB., RE--OIGMS & HILL
AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET,
WASHINGTON, D. C. 20555 (08 CENTS/PAGE -- MINIMUM CHARGE
\$2.00)ABSTRACT DATE OF EVENT - 071978. POWER LEVEL - 90%. CAUSE - ZENER
DIODE FAILURE. DURING THE MONTHLY LOAD TEST OF DIESEL
GENERATOR, THE GENERATOR FIELD WENT TO MAXIMUM EXCITATION AND
WAS SHUTDOWN TO PREVENT GENERATOR DAMAGE. THREE PROBLEM AREAS
WERE DISCOVERED: THE FIELD BOOST RELAY HAD DRIFTED, THE
REFERENCE P.T. STAB WAS LOOSE AND THE REGULATOR REFERENCE ZENER
WAS FOUND DEFECTIVE. THE ITEMS WERE REPAIRED AND THE DIESEL
RETESTED AND RETURNED TO SERVICE. THE ZENER DIODE WAS FELT TO
BE THE FAILURE MECHANISM.

COMPONENT CODE GENERA-GENERATORS

SYSTEM CODE EE-EMERG GENERATOR SYS & CONTROLS

89/5/0000001-00000177 11

ACCESSION NO. 0020139827
TITLE DIESEL GENERATOR FAILS TO REACH 4.16 KV TERMINAL VOLTAGE AT FT. CALHOUN 1

CORPAUTH OMAHA PUBLIC POWER DISTRICT, OMAHA, NE

DATE 1978

TYPE U

MEMO 4 PGS, LTR W/LETR 78-017 TO U.S. NRC, REGION IV, JULY 7, 1978.

AVAIL DCKET 50-285, TYPE--PWR, MFG--COMB., RE--OIGMS & HILL
AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET,
WASHINGTON, D. C. 20555 (08 CENTS/PAGE -- MINIMUM CHARGE
\$2.00)ABSTRACT DATE OF EVENT - 061978. POWER LEVEL - 0%. CAUSE - GENERATOR
FIELD FUSE FAILED. DURING THE REQUIRED TEN SECOND START AND
FULL LOAD TEST OF DIESEL GENERATOR NO. 1 PRIOR TO PLANT
STARTUP, THE GENERATOR FIELD FAILED TO REACH RATED 4.16 KV
TERMINAL VOLTAGE. ONE OF THE SEVEN 100 AMP FUSES SUPPLYING
THE GENERATOR FIELD WAS FOUND TO HAVE FAILED. THE FUSE WAS
REPLACED AND THE DIESEL TESTED SATISFACTORILY.

COMPONENT CODE CTRBK-CIRCUIT CLUSERS/INTERRUPTERS

SYSTEM CODE EE-EMERG GENERATOR SYS & CONTROLS

89/5/0000001-00000177 12

ACCESSION NO. 0020124893
TITLE BOTH DIESEL GENERATORS FAIL TO START WITHIN THE REQUIRED TIME
AT FT. CALHOUN 1

CORPAUTH OMAHA PUBLIC POWER DISTRICT, NEBRASKA

DATE 1977

TYPE U

MEMO 5 PGS, LTR W/LETR 80-285/77-12 TO U.S. NRC, REGION IV, APRIL 21,

AVAIL 1977, DCKET 50-285, TYPE--PWR, MFG--COMB., RE--OIGMS & HILL
AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET,
WASHINGTON, D. C. 20555 (08 CENTS/PAGE -- MINIMUM CHARGE
\$2.00)ABSTRACT DATE OF EVENT - 040677. POWER LEVEL - 100%. CAUSE - DEPOSITS
IN AIR STARTING MOTORS. DURING SURVEILLANCE TESTS OF DIESEL
GENERATOR 1 ON APRIL 6 AND 04/12 ON APRIL 14 TO TEST
OPERABILITY, THE DIESELS FAILED TO START WITHIN THE 10 SECOND
LIMIT. DEPOSITS WERE FOUND ON THE SECONDARY AIR STARTING
MOTORS. BOTH WERE RESTARTED ON SECONDARY AIR TO VERIFY THE
REQUIRED 10 SECOND START LIMIT. BOTH STARTED ON PRIMARY AIR
START WITHIN THE 10 SECOND LIMIT. DUE TO THE SYSTEM DESIGN,
UNDER NORMAL ALIGNMENT, A TIME DELAY IS INTRODUCED IN THE
SECONDARY AIR START SYSTEM.

COMPONENT CODE ENGINE-ENGINES, INTERNAL COMBUSTION

SYSTEM CODE EE-EMERG GENERATOR SYS & CONTROLS

ACCESSION NO. 0020124189
 TITLE DIESEL GENERATOR FUEL OIL INVENTORY INDICATES LUG AT FT. CALHOUN 1
 CORPAUTH OMAHA PUBLIC POWER DISTRICT, OMAHA, NE
 DATE 1977
 TYPE U
 MEMO 5 PGS. LTR W/CLR 50-285/77-11 TO U.S. NRC, REGION IV, APRIL 25, 1977. DOCKET 50-285. TYPE--PWR. MFG--COMB., AB--CLIPS & HILL
 AVAIL AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET, WASHINGTON, D. C. 20545 (50 CENTS/PAGE -- MINIMUM CHARGE \$2.00)
 ABSTRACT DATE OF EVENT - 040777. POWER LEVEL - 95%. CAUSE - OPERATOR ERROR. FOUR DAILY DIESEL GENERATOR FUEL OIL INVENTORY READINGS WERE LOGGED WHICH WERE SLIGHTLY BELOW THE 15000 GALLON LIMIT. THE MIDNIGHT SHIFT RECORDED THE OUT OF SPEC RESULTS BUT FAILED TO RECOGNIZE THEM AS SUCH. WHEN THE TANK WAS LATER FILLED TO FULL CAPACITY, IT WAS DETERMINED THAT THE ACTUAL LEVEL DURING THIS TIME WAS SLIGHTLY ABOVE THE LIMIT. THE SHIFT INVOLVED WAS REINSTRUCTED.
 COMPONENT CODE ACCUMU-ACCUMULATIONS
 SYSTEM CODE 22-EMERG GENERATOR SYS & CONTROLS

89/5/0000001-000001777 14

ACCESSION NO. 0020117959
 TITLE PRIMARY AIR START MOTOR FAILS TO DISENGAGE AFTER CG STARTED AT FT. CALHOUN 1
 CORPAUTH OMAHA PUBLIC POWER DISTRICT, OMAHA, NE
 DATE 1976
 TYPE U
 MEMO 5 PGS. LTR W/CLR 50-285/76-27 TO U.S. NRC, REGION IV, SEPT. 15, 1976. DOCKET 50-285. TYPE--PWR. MFG--COMB., AB--CLIPS & HILL
 AVAIL AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET, WASHINGTON, D. C. 20545 (50 CENTS/PAGE -- MINIMUM CHARGE \$2.00)
 ABSTRACT CAUSE - IMPROPER SETTING OF PICKUP UNIT. WITH THE REACTOR OPERATING AT 75% POWER, THE PRIMARY AIR START MOTOR FOR CG-2 FAILED TO DISENGAGE AFTER THE CG-2 WAS SUCCESSFULLY STARTED. THE AIR GAP SETTING FOR THE MAGNETIC PICKUP UNIT FOR THE AIRPAX ELECTRONICS SWITCHING TACHOMETER HAD DRIFTED FROM .005-.010 TO .015 SETTING. AS A RESULT OF FAILURE TO DISENGAGE, SOME BURRING ON THE STARTER MOTOR GEAR TEETH OCCURRED.

89/5/0000001-000001777 15

ACCESSION NO. 0020117887
 TITLE DIESEL GENERATOR GOVERNOR MOTOR FAILS AT FT. CALHOUN 1
 CORPAUTH OMAHA PUBLIC POWER DISTRICT, OMAHA, NE
 DATE 1976
 TYPE U
 MEMO 5 PGS. LTR W/CLR 50-285/76-26 TO U.S. NRC, REGION IV, AUG. 31, 1976. DOCKET 50-285. TYPE--PWR. MFG--COMB., AB--CLIPS & HILL
 AVAIL AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET, WASHINGTON, D. C. 20545 (50 CENTS/PAGE -- MINIMUM CHARGE \$2.00)
 ABSTRACT CAUSE - INTERNAL FAULT. DURING A NORMAL SHUTDOWN OF DIESEL GENERATOR 2 WITH THE REACTOR AT 95% POWER, A CG BUS 2 GROUND ALARM ANNOUNCATED AND SMOKE WAS OBSERVED COMING FROM THE GOVERNOR MOTOR ENCLOSURE. THE WOUNDING ELECTRIC CO., TYPE NSE-11R, 115 VAC-DC, 1700 HP, 5000 RPM, GOVERNOR MOTOR WAS AT THE INTERNALLY FAULTED RESULTING IN AN OPEN ARMATURE WINDING. IT WAS REPLACED. THE PIN AND SOCKET CONNECTOR FOR THE GOVERNOR MOTOR WAS DAMAGED DUE TO THE MOTOR FAULT AND WAS REMOVED. THE WIRING WAS SPLICED.

89/5/0000001-000001777 16

ACCESSION NO. 0020113777
 TITLE DIESEL GENERATOR AIR START MOTOR FAILS TO DISENGAGE AT FT. CALHOUN 1
 CORPAUTH OMAHA PUBLIC POWER DISTRICT, OMAHA, NE
 DATE 1976
 TYPE U
 MEMO 5 PGS. LTR W/CLR 50-285/76-16 TO U.S. NRC, REGION IV, MAY 10, 1976. DOCKET 50-285. TYPE--PWR. MFG--COMB., AB--CLIPS & HILL
 AVAIL AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET, WASHINGTON, D. C. 20545 (50 CENTS/PAGE -- MINIMUM CHARGE \$2.00)

\$2.00)

ABSTRACT

CAUSE - SWITCHING TACHOMETER OUT OF ADJUSTMENT. DURING TESTING WITH THE REACTOR AT 90% POWER, THE PRIMARY AIR START MOTOR FOR DG2 FAILED TO DISENGAGE AFTER A SUCCESSFUL START TO 100 RPM. THE AIRGAP SETTING FOR THE MAGNETIC PICKUP UNIT FOR THE AIRPAX ELECTRONICS SWITCHING TACHOMETER WAS NOT SET CORRECTLY. THE AIR GAP WAS ADJUSTED. PROCEDURES WERE REVISED TO INCLUDE CHECKING THE GAP WHENEVER THE UNIT IS RE-INSTALLED.

89/5/0000001-000001777

17

ACCESSION NO.

0020113528

TITLE

DIESEL RESPONSE TIME EXCEEDS LIMIT AT FT. CALHOUN 1

CURPAUTH

OMAHA PUBLIC POWER DISTRICT, OMAHA, NE

DATE

1976

TYPE

Q

MEMO

2 PGS. LTR W/LEX 50-265/76-11 TO U.S. NRC, REGION IV, WAY 4, 1976. DOCKET 50-265. TYPE-PAK, MFG-CUMB., RE-TRACES & HILL

AVAIL

AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET, WASHINGTON, D. C. 20545 (60 CENTS/PAGE - MINIMUM CHARGE \$2.00)

ABSTRACT

CAUSE - PROCEDURAL DEFICIENCY. DURING A DIESEL TEST WITH THE REACTOR AT 100% POWER, THE START ON SECONDARY AIR REQUIRED 10.6 SECONDS. THE LIMIT IS 10 SECONDS. PRIMARY AIR START WAS IMMEDIATELY TESTED REQUIRING 3.2 SEC. A RETEST OF SECONDARY AIR REQUIRED 3.1 SEC. PROCEDURE WAS INADEQUATE IN THAT IT DID NOT REQUIRE SPECIFICALLY THAT THE AIR MOTOR UTILIZED FOR STARTING BE CONSISTENTLY ALTERNATED FROM PRIMARY TO SECONDARY.